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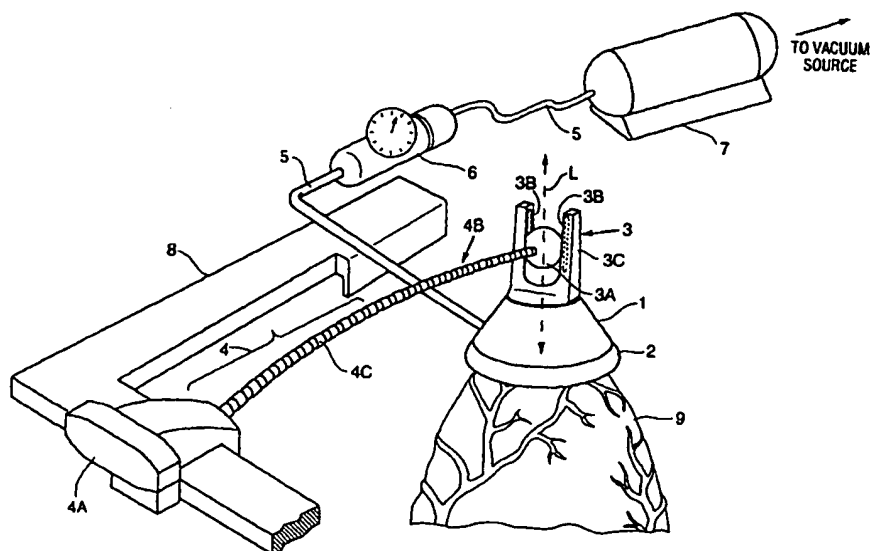
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[Continued on next page]

(54) Title: **ORGAN MANIPULATOR**



(57) Abstract: An organ manipulator including at least one suction member or adhesive disc mounted to a compliant joint, a flexible locking arm for mounting such suction member or compliant joint, and a method for retracting and suspending an organ in a retracted position using suction (or adhesive force) so that the organ is free to move normally (e.g., to beat or undergo other limited-amplitude motion) in at least the vertical direction during both steps. In preferred embodiments, a suction member exerts suction to retract a beating heart and suspend it in a retracted position during surgery. As the retracted heart beats, the compliant joint allows it to expand and contract freely (and otherwise move naturally) at least in the vertical direction so that hemodynamic function is not compromised.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/24372

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61B17/02 A61B19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 919 193 A (ETHICON ENDO-SURGERY, INC.) 2 June 1999 (1999-06-02) the whole document	1,14-17, 19,24,25
Y	---	2-5,7,8, 21-23, 29-36
Y	EP 0 791 330 A (CARDIOTHORACIC SYSTEMS, INC.) 27 August 1997 (1997-08-27) abstract; figures 9A-9E,28A,28B,42-46C,50A-51B,57-63 column 20, line 14 -column 21, line 12 column 30, line 1-20 column 37, line 24 -column 40, line 6 column 41, line 6-53 column 44, line 50 -column 47, line 49 --- -/--	2-5,7,8, 21-23, 29-36

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

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Date of mailing of the international search report

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 782 746 A (WRIGHT) 21 July 1998 (1998-07-21) cited in the application abstract; figures column 4, line 5-59 column 5, line 5 -column 6, line 16 ---	1,5-8,13
A	WO 97 26828 A (GENTILLI ET AL.) 31 July 1997 (1997-07-31) the whole document ---	1,5,9-12
A	US 5 885 271 A (HAMILTON ET AL.) 23 March 1999 (1999-03-23) abstract; figures ---	1,5,26
A	US 5 927 284 A (BORST ET AL.) 27 July 1999 (1999-07-27) abstract; figures column 8, line 4-16 ---	1,26
A	US 5 799 661 A (BOYD ET AL.) 1 September 1998 (1998-09-01) cited in the application abstract; figures 28-35 column 18, line 14 -column 19, line 48 ---	1
A	WO 98 49944 A (PILLING WECK INCORPORATED ET AL.) 12 November 1998 (1998-11-12) the whole document -----	1,36,37, 40,41, 44,46

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/24372

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 50-55
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-47

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-47

An organ manipulation apparatus having a suction member

2. Claims: 48,49

An organ manipulation apparatus having a bio-absorbable disc with an adhesive surface

3. Claims: 56-67

Locking arm having a flexible state and a rigid state comprising; a cable and ball joints threaded along the cable

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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